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November 25, 2007

To: Arthur Levitt, Jr. (Co-Chair)
Donald T. Nicolaisen (Co-Chair)
Members of the Advisory Committee on the Auditing Profession

From: Joseph V. Carcello
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Re: Comments for December 3rd Meeting of the U.S. Treasury Advisory Committee on the Auditing Profession

I agree with Secretary Paulson that a strong auditing profession is essential to the health and vitality of the U.S. capital markets, and I applaud him for forming this committee. I want to thank the Committee's co-chairs, Arthur Levitt and Don Nicolaisen, for giving me the opportunity to testify before this distinguished group on human capital issues facing the auditing profession. The following written remarks serve as background for my testimony on December 3rd.[1]

Focus of Remarks

In his welcome and introductory remarks before the first meeting of Treasury's Advisory Committee on the Auditing Profession (Advisory Committee), Under Secretary for Domestic Finance Robert Steel stated, "Congress, considering what would eventually become the Sarbanes-Oxley Act of 2002, harshly reminded the profession, '[T]he franchise given to public accountants by the securities laws is *conditional*; it comes in return for the CPA's faithful

[1] I thank Andy Bailey and Dana Hermanson for their suggestions, and Mike Borth for research assistance. Notwithstanding these acknowledgements, I am solely responsible for these comments.

assumption of a public trust.'" I agree with Secretary Steel. My remarks relate to the human capital (HC) challenges facing the public company auditing profession. I define the public company auditing profession as relating to the profession's special franchise – providing an opinion, primarily for external parties, on the fairness of financial statements and internal control. I do not consider the ancillary services sold by public accounting firms (i.e., tax services, consulting services, etc.) to be part of this special franchise; rather, these services are businesses. The HC challenges facing the public company auditing profession make it less likely that the profession can effectively serve the interests of the investing public. Also, when discussing HC issues I adopt a cost-benefit framework.

Before discussing the HC issues facing the public company auditing profession, I offer two caveats. First, although I have tried to ground my observations in empirical data whenever possible, there is only limited data on many of the issues discussed. And, given the limited time that I was provided to prepare for this testimony, I was constrained in my ability to gather significant additional data. Therefore, my written comments, and the testimony that I will offer before the Advisory Committee on December 3rd, represent my informed analyses of the HC issues facing the auditing profession and potential solutions that I offer for the Advisory Committee's consideration.

I believe that my background enables me to offer informed advice to the Advisory Committee on HC issues and potential solutions. I am the Ernst & Young Professor at the University of Tennessee (Knoxville) and am the co-founder and Director of Research for the University's Corporate Governance Center. I have been a college professor for almost 20 years, following a brief career in public accounting and in industry. I teach courses in auditing, corporate governance, and financial accounting, at the undergraduate, MAcc, executive MBA,

and Ph.D. levels, and have conducted my research primarily in the areas of corporate governance and fraudulent financial reporting. I was part of the COSO-sponsored research team that studied fraudulent financial reporting in the U.S. from 1987-1997, and I am part of the research team recently selected by COSO to update and extend that study from 1998 through 2007. In addition, I currently serve as VP-Finance and as a member of the executive committee, finance committee, and audit committee for the American Accounting Association (AAA), the oldest, largest, and most prestigious body of accounting educators in the world. I previously served as President of the Auditing Section of the AAA. I am a member of the PCAOB's Standing Advisory Group, and previously served as a member of COSO's Small Business Control Guidance Advisory Group Task Force. I am a CPA, Certified Internal Auditor, and Certified Management Accountant.

The focus of my written comments is on identifying and discussing the HC challenges facing the public company auditing profession. To the extent possible, I cross-reference my identification of HC challenges to the Advisory Committee's discussion outline. In my testimony before the Advisory Committee on December 3rd, I will offer potential solutions to the HC challenges identified.

Quantity and Quality of Accounting Graduates

The Advisory Committee projects a robust demand for accountants through 2014 (outline # 2.3.1.1) and suggests that the large number of anticipated retirements may result in a labor shortfall (outline # 2.3.1.2). However, the Advisory Committee also recognizes that enrollments in accounting programs have increased by 19% from 2000 to 2004 (outline # 2.3.1.3). Since there is some uncertainty as to whether this increase in accounting enrollments is due to the decline in the information systems market and/or to the publicity received by the accounting

profession as a result of the accounting scandals and Sarbanes-Oxley Act, it remains an open question as to whether there will be a sufficient supply of accounting graduates to meet the labor needs of the public company auditing profession. In addition to uncertainty as to whether the quantity of accounting graduates will be sufficient, there is an even bigger concern – whether the quality of entrants to the profession is adequate given the ever-increasing complexity and other challenges involved in auditing public companies.

Quantity of Accounting Graduates

My sense is that there is a sufficient raw number of accounting graduates to meet the needs of the public company auditing profession for the foreseeable future. The largest eight accounting firms provide audit services to companies comprising 99 percent of the aggregate market capitalization of Compustat-listed companies. These accounting firms limit, or at least concentrate, their recruiting efforts on a limited number of universities (i.e., "target" schools). If a genuine shortage of personnel existed at the entry level, these firms could simply expand the number of universities where they recruit.[2] The bigger and, in my view, far more relevant issue is whether a sufficient number of *suitably-qualified* accounting graduates will exist to meet the needs of the public company auditing profession.

Quality of Accounting Graduates

Absent a successful intervention, I am less sanguine as to whether there will be a sufficient number of suitably-qualified accounting graduates to meet the needs of the public company auditing profession. The last 20 years have seen a tremendous acceleration in the risk

[2] If the largest eight accounting firms expand their recruiting sources to include additional universities, other labor market imbalances may result. These other universities have been traditional suppliers of entry-level personnel to management accounting, internal audit, and state and local governments. Moreover, the eight largest accounting firms could hire additional students from their "target" universities; approximately 10-30% of students at target schools are hired by local accounting firms or by industry.

and complexity of business transactions, and, perhaps as a result, the accounting literature has become much more voluminous and complex. In order to successfully audit today's business entities, the auditor needs to be very bright, motivated, well trained and, most importantly, committed to the public's interest. A recent report by the 103rd American Assembly on the *Future of the Accounting Profession* (2003) concluded, "The accounting profession needs to position itself to compete with others to attract the best and brightest among each fresh crop of college graduates." But this same report concludes, "In order for the profession to thrive, participants agreed it would need to attract the 'best and the brightest' university and college graduates, while simultaneously voicing concerns about its ability to do so. In years past, significant numbers of graduates of the most respected business schools opted to join the accounting profession. Today, fewer are following in their footsteps, opting for alternative career paths." The issue the Advisory Committee should contemplate is the following: Is the public company auditing profession truly viable as a meaningful guardian of investor capital if corporate executives are smarter than auditors, and if this difference is growing at an increasing rate?

If the best and the brightest are migrating away from accounting, where are they going? Although I suggest that the Advisory Committee perform its own analyses, my sense is that students are largely migrating to fields with larger financial returns (e.g., consulting, corporate law, hedge funds, investment banking, and private equity). The financial returns available in some of these fields are staggering and have grown rapidly in recent years (Kaplan and Rauh, 2007).

A further analysis of the costs and benefits of pursuing an accounting degree vis-à-vis other alternatives is useful in understanding why there may be a future shortage of suitably-

qualified public company auditors. I adopt a maintained hypothesis that bright students assess the costs and benefits of alternative career choices when selecting a college major.

Costs of Getting an Accounting Degree – There are two primary costs associated with getting an accounting degree. The first are the dollar costs – costs of tuition, books, room and board, and the opportunity cost of not being employed. The second are what I refer to as "effort" costs – the number of study hours needed to successfully complete an accounting degree, particularly vis-à-vis other degree options.

The dollar costs of obtaining an accounting degree are comparable to the costs of obtaining any other degree through the first four years of college. However, unlike most other business majors, accounting students in many states are required to complete 150 hours of education in order to sit for the CPA exam. This requirement for a 5th year of education clearly increases the dollar costs of obtaining an accounting degree. The extant literature indicates that the 150-hour requirement has reduced the number of students pursuing an accounting degree (e.g., see Allen and Woodland, 2006). However, over 60% of the decline in the number of accounting majors is due to other causes (Boone and Coe, 2002), including a decline in the relative salaries of entry-level accountants and a decline in the academic preparedness of incoming freshmen (Billiot et al., 2004). Moreover, Nelson et al. (2002) find that both seniors and Master's students indicate a very high level of support for five years or more of education to be a CPA. An obvious question suggested by these research findings is the following: Why has the number of accounting majors declined if students are supportive of a 5th year of college education? Although only conjecture, presumably those students who are more committed to the accounting profession remain in the discipline, and these students express a high level of support for a 5th year of education. Other students who are less committed to the profession choose to

major in another discipline. Given the ample existing supply of accounting graduates, this decline in students who are less committed to the profession may be optimal.

The more important question as it relates to the 150-hour requirement is whether students who complete a 5th year of education are better prepared for success in the profession. Raghunandan et al. (2003), after controlling for SAT scores, accounting credit hours, and enrollment in CPA exam preparation courses, find that students completing a 150-hour program have higher CPA exam pass rates, and Allen and Woodland (2006) find that students with 150-hours of education are modestly more likely to pass the CPA exam. Cumming and Rankin (1999) study student preparedness for the CPA exam in Florida, among the first states to adopt a 150-hour requirement. Pass rates on the CPA exam approximately doubled from before to after the 150-hour requirement.[3] Finally, Wier et al. (2005) find that the performance evaluations of those with an MBA or MAcc degree are higher than those holding only a baccalaureate degree, although they measured performance of management accountants not of external auditors.

The second cost of obtaining an accounting degree are "effort" costs – that is, do students have to work harder to obtain an accounting degree vis-à-vis a degree in other business disciplines, and has any differential effort increased over time? There are both cross-sectional and time series elements to this analysis. First, do accounting students work harder than other business students? Second, do accounting students work harder today than they have in the past? I have been unsuccessful in locating empirical evidence on the hours worked by accounting majors as compared to other disciplines in the business school, but my anecdotal observation

[3] It is important to recognize that the content and delivery of the CPA exam was redesigned during this period to increase the breadth of testing (i.e., more focus on general business knowledge) and to reduce the depth of testing (i.e., less focus on financial accounting and auditing, arguably the two subjects most important to public company auditing). It is possible that the improved performance on the CPA exam is at least partly due to a change in the nature of the exam.

based on the five universities where I have either attended or taught is that accounting is typically perceived by students as involving the most work.

The second issue is whether accounting students work harder today than in the past. Developments over the past 10 years have greatly expanded the number of conceptual areas that students need to master. First, for many years, the primary measurement basis in GAAP financial statements was historical cost. In recent years, one could argue that accounting standard setters are developing a parallel measurement basis to historical cost – i.e., the rapid growth of fair value measurement in GAAP (e.g., see FAS 115, FAS 123R, FAS 133 (and other derivative standards), FAS 157, and FAS 159, among others). Preparing and auditing fair value measurements requires a different skill set than that required for historical cost measurements, skill sets largely derived from finance, mathematics, and statistics. This expansion of the needed competencies of accountants raises the effort cost of an accounting degree for students (and, also, for faculty; more will be said on this topic later). Second, given the required reporting by management, and certification by auditors, of the effectiveness of internal control over financial reporting mandated by SOX Section 404, students are now essentially studying a parallel auditing literature composed of PCAOB Auditing Standard No. 5 (AS #5) and the COSO framework, including other needed control-based competencies such as EDP auditing. Third, although not yet embedded within many university curricula, there are increasing expectations to expose students to International Financial Reporting Standards (IFRS, outline # 2.3.2.10) and eXtensible Business Reporting Language (XBRL, outline # 2.3.2.11). Finally, there are also calls to provide better university training on fraud prevention and detection (an over-arching principle of the Advisory Committee), ethics (outline # 2.4.1.1.4), corporate governance (SOX), and enterprise risk management (for the relevance of this topic one only need point to the recent

travails of Citigroup and Merrill Lynch, among others). It is also worth noting that Goldman Sachs' strong focus on effective risk management is largely credited with helping them to avoid the recent losses experienced by many of their competitors (Anderson and Thomas, 2007).

In addition to the above, over the last 40 years the increase in the raw quantity of detailed standards has also contributed to the demands placed on students and their programs. I attempt to provide evidence on this issue by examining the body of professional standards at various points in time. Although not a perfect proxy for student effort, one can argue that it is more challenging to master a field with a larger body of professional standards than a more limited set of standards. I tabulate the approximate number of accounting and auditing standards issued as of five dates, each approximately ten years apart, and each associated with the issuance of a major educational study recommending graduate education for accountants. The years examined are 1959 (*Special Coordinating Committee to Study the Report of the AICPA Commission on Standards of Education and Experience for CPAs*), 1969 (*Beamer Committee Report*), 1978 (*Albers Committee Report*), 1987 (*Plan to Restructure Professional Standards*), 1999 (*AICPA Core Competency Framework for Entry into the Accounting Profession*). All of these reports recommended post-baccalaureate education for entry into the accounting profession, including a report issued almost *50 years* ago.

	1959	1969	1978	1987	1999	2007
No. of "level A" accounting standards	51	66	106	179	219	241
No. of auditing standards	29	41	77	105	144	173

Moreover, the standards being issued in more recent years are typically much longer and more complex than standards issued in earlier years. For example, for many years APB 25 provided authoritative guidance in accounting for stock options. This standard is 12 pages (see FASB *Original Pronouncements*). APB 25 was ultimately superseded by FAS 123R; FAS 123R is 170 pages. Although not every instance is this dramatic, this example is directionally consistent with a general pattern of longer and more complex standards being issued.

The facts clearly indicate that the body of knowledge that accounting students need to master has increased over time, which is at least suggestive that the "effort" costs of obtaining an accounting degree have increased as well.

Benefits of Getting an Accounting Degree – It seems clear that the intellectual demands, time, and financial costs of obtaining an accounting degree have increased over time. Although accounting students express support for the 150-hour education requirement, there can be no denying that it is more challenging and expensive to attend college for five years than for four. Moreover, the growth in the profession's body of knowledge at least suggests that accounting students are likely to be working harder than they have in the past and harder than their peers in the business school.

These developments might not have adverse effects on the attractiveness of the accounting profession if the level of respect for the profession and its financial rewards, particularly compared with other business school disciplines and with other comparable professions (e.g., law, investment banking), have risen over time in a manner commensurate with the increased demands and costs associated with earning a degree. The facts suggest otherwise. Compared to salaries paid by four other types of employers – investment banking and corporate finance, financial / treasury analysis, information systems / computer science, and consulting –

the average salaries paid by public and private accounting organizations are the lowest (Albrecht and Sack, 2000).

To provide further data on the benefits of obtaining an accounting degree, I provide data on absolute and relative starting salaries for a MAcc graduate with a Big 4 firm, as well as analyses of the change in MAcc starting salaries over time compared with other fields that compete for the same student talent. I use 1985 as my base year. As the below table indicates, starting salaries for a MAcc graduate with a Big 4 firm in New York City (NYC) are substantially lower than starting salaries for a law firm associate in NYC and lower than starting salaries for investment bankers in NYC. In fairness, a MAcc graduate completes five years of school, whereas new investment bankers typically have an MBA (six years of school) and attorneys have completed law school (seven years of school). Therefore, it seems reasonable to expect MAcc graduates to earn less; the bigger question is how much less? Since this question is impossible to answer, I analyze whether this gap has increased over time. If so, it seems reasonable to argue that a career in public accounting is less attractive than a career in law or investment banking (at least monetarily) today as compared with 1985.

In 1985, a MAcc graduate with a Big 4 firm in NYC earned approximately 69% ($31.2K / $45.5K) of the starting salary of an investment banker, and 60% ($31.2K / $52K) of the starting salary of an associate at a NYC law firm. In 2007, a MAcc graduate earns only 35% ($65K / $185K) of the starting salary of an investment banker and only 45% ($65K / $145K) of the starting salary of an attorney. This represents a substantial decline in the *relative* earning power of accounting graduates vis-à-vis other fields.

As another means of measuring the relative attractiveness of accounting, I analyze whether accounting starting salaries have even kept pace with inflation and with growth in

personal income. Starting salaries in accounting have barely outpaced inflation, but substantially lag what they would be in 2007 if they had just increased in line with personal income growth. Salaries in law have outpaced inflation, but they too have not risen as fast as personal income growth, although this shortfall is less than it is in accounting. Finally, investment banking salaries have increased faster than both inflation and personal income growth.

Show Me The Money?

	Public Accounting, NY		Investment Banking		Attorney, Top 20 NY Firm	
Actual Salary, 1985	$31,200		$45,500		$52,000	
Projected Salary Levels	Growth at Inflation	Growth at National Personal Income Rate	Growth at Inflation	Growth at National Personal Income Rate	Growth at Inflation	Growth at National Personal Income Rate
1986	$31,692	$33,039	$46,218	$48,181	$52,820	$55,064
1987	32,937	34,898	48,032	50,894	54,894	58,164
1988	34,297	37,835	50,016	55,176	57,161	63,058
1989	36,004	40,703	52,506	59,358	60,007	67,838
1990	37,741	43,481	55,039	63,410	62,902	72,468
1991	39,420	44,706	57,487	65,196	65,699	74,510
1992	40,664	47,452	59,302	69,201	67,774	79,087
1993	41,793	49,222	60,948	71,781	69,655	82,036
1994	42,951	51,894	62,636	75,679	71,584	86,490
1995	44,137	54,498	64,367	79,477	73,562	90,831
1996	45,440	57,833	66,266	84,340	75,733	96,388
1997	46,453	61,197	67,744	89,246	77,421	101,995
1998	47,234	65,932	68,883	96,151	78,724	109,887
1999	48,247	68,917	70,360	100,504	80,412	114,862
2000	50,013	75,139	72,935	109,578	83,354	125,232
2001	51,373	77,309	74,919	112,742	85,622	128,848
2002	52,125	78,740	76,016	114,829	86,876	131,233
2003	52,588	81,221	76,692	118,447	87,647	135,368
2004	54,817	86,046	79,942	125,484	91,362	143,411
2005	56,554	91,737	82,474	133,783	94,256	152,894
2006	58,898	97,267	85,893	141,847	98,163	162,111
2007	60,287	103,868	87,918	151,474	100,478	173,113
Actual Salary, 2007	$65,000		$185,000		$145,000	

Assumptions:
Beginning and ending salaries for investment banking associates and first-year law associates identified from NY Times and WSJ articles.
2007 Big 4 public accounting salary per personnel recruiter with Big 4 firm.
1985 Big 4 public accounting salary represents 1985 starting salary in Atlanta ($24,000) per author incremented by the current 30% New York City salary premium.
Inflationary Growth is calculated from the annual levels, at July 1, of the *Consumer Price Index for All Urban Consumers, All Items,* published by the U.S. Department of Labor.
General Rate of Income Growth is calculated from the annual levels, at July 1, of the *Personal Income* , published by the Bureau of Economic Analysis.

Finally, although difficult to quantify, a historical attraction of the public accounting profession was its "respected position" within the business community. Auditors were viewed as professionals, albeit ones without as much status as doctors and lawyers, but ones with a distinct

and important societal role. As the profession "commoditized" the audit during much of the past two decades, and as it sought its growth and funneled its rewards through the pursuit of consulting services, students have come to view employment with a public accounting firm as just one in a cornucopia of career alternatives. This diminution in the "psychic" value of a career in public accounting makes student evaluation of career alternatives even more of a cold-blooded calculation of costs and benefits (both in dollars and in effort). And, as discussed next, the profession does not fare well in this analysis.

Analysis of Net Costs vs. Benefits – My analysis indicates that the costs, both in dollars and effort, of obtaining an accounting degree have grown faster than the benefits of obtaining an accounting degree. This seems to suggest two alternatives. One possibility is to lower the costs of obtaining an accounting degree. This Advisory Committee could recommend a reduction of the education requirements of accountants to 120 hours from 150 hours. Such a recommendation, if implemented, would clearly lower the dollar costs of obtaining an accounting degree. In addition, since most four-year accounting curricula have no more than 21-24 credit hours to work with (7-8 courses),[4] and a number of these courses are devoted to topics that are only indirectly related to public company auditing (e.g., cost accounting, governmental accounting, personal tax), the reality is that the effort cost of obtaining an accounting degree would decline as well. However, the Advisory Committee needs to recognize three consequences of any such decision. First, the professional stature sought by the accounting profession would be severely undermined. This hardly seems like a recipe for attracting the best and brightest. Second, much of the expanded body of knowledge would not be covered or

[4] In most universities general education requirements comprise approximately 50% of the curriculum, and non-accounting business courses comprise approximately 25%-30% of the curriculum. Accounting faculty members have little, if any, ability to change these allocations.

covered only in a limited way (e.g., fair value, IFRS, XBRL, internal control reporting). Third, not exposing students to the expanded body of knowledge and competencies needed for career success does not change the fact that professional accountants need to master this body of knowledge. Therefore, any reduction in the education requirement for accountants would simply transfer the cost of professional training from the aspirant to the employer (and, by extension, to the client).

The second alternative is to increase the benefits of obtaining an accounting degree. This might require accounting firms to change their staffing models to more closely resemble law firms. Firms might hire four-year graduates to perform audit tasks in lower risk areas and graduates of professional schools to perform audit tasks in higher risk areas, and it would be this latter group that would be expected to progress to partnership positions within the firm. Regardless of the staffing model ultimately adopted, it seems unlikely that a sufficiently large quantity of suitably-qualified accounting graduates will exist in the future unless the imbalance between the costs and benefits of majoring in accounting is rectified. I close this section of my remarks with a quote from Ed Ketz (2004), a long-time professor at Penn State University.

> "The [American Assembly report referred to previously] also contends that the Profession must attract 'the best and the brightest' students. I have taught university accounting for about 30 years and have heard this statement over all of those years. I believe that CPAs actually believed this declaration 30 years ago because they did something to attract 'the best and the brightest.' But not today. I can remember the days when the mean salary of accounting undergraduates ranked in the top five average salaries of all majors in the university, generally only behind computer science and some engineering majors. Today the average compensation of accounting students might not place in the top five majors *in the college of business alone*. If the profession really wants 'the best and the brightest,' the solution is easy. Increase the wages."

Quantity and Quality of New Faculty

The Advisory Committee recognizes the aging of the accounting professoriate (outline # 2.4.2.1.2). In addition to the data contained in the Advisory Committee's outline, it is worth noting that 53% of accounting faculty members are 55 or older; the modal age of an accounting faculty member is over 60; and, perhaps most alarmingly, there are more accounting faculty members in their 70s than their 30s (Hasselback, 2007).

In addition to the aging of the accounting professoriate, there is a severe shortage of students in accounting Ph.D. programs and this shortage appears to be worsening. The number of accounting Ph.D. graduates over the past eight years (941 graduates) is significantly less than the number of graduates over the previous eight years (1,488 graduates), which was below the number of graduates in the preceding eight years (1,664 graduates) (AAA/APLG/FSA Doctoral Education Committee, 2007). Given that 1,500 accounting faculty are projected to retire in the next eight years, the limited number of students in accounting Ph.D. programs is expected to exacerbate the faculty shortage (AAA/APLG/FSA Doctoral Education Committee, 2007).

The Advisory Committee is charged with considering the reasons for this potential accounting faculty shortage (outline # 2.4.2.1.3). As with my discussion of the quantity and quality of accounting students, I focus on the costs and benefits of obtaining an accounting Ph.D. in analyzing this issue.

Costs to the Student in Pursuing an Accounting Ph.D. – In my view, there are two issues with respect to the shortage of accounting PhDs. First, there is a lack of student demand, especially from U.S. citizens. Second, there is a lack of capacity, or an unwillingness to expand capacity, at many Ph.D. institutions.

There is a lack of student demand for a number of reasons. The biggest reason for the lack of student demand is the large opportunity cost. It takes between four and six years to earn a Ph.D. at most institutions (Deloitte Foundation Accounting Doctoral Student Survey, 2007).[5] Almost 60% of doctoral students receive an annual stipend of between $10K and $20K (Deloitte Foundation Accounting Doctoral Student Survey, 2007). Many of the people considering a Ph.D. program are earning between $60K and $100K. So, a conservative estimate of the opportunity cost is $200K.[6]

One could argue that this opportunity cost is worth it given the high salaries paid to new accounting Ph.Ds. But I don't think our salaries offset the opportunity cost for at least four reasons. First, many Ph.D. programs have an expectation that they will "wash out" some portion their students. For example, the attrition rate in accounting Ph.D. programs is somewhere between 20% (Deloitte Foundation Accounting Doctoral Student Survey, 2007) and 33% (AAA/APLG/FSA Doctoral Education Committee, 2007). This attrition rate increases the risk associated with entering a Ph.D. program.

Second, accounting Ph.D. programs are essentially modeled after finance and economics Ph.D. programs. As such, these programs demand high levels of ability in math and statistics. Although these backgrounds are common for people entering finance and economics Ph.D. programs, they are less common for students in accounting Ph.D. programs, especially individuals entering a Ph.D. program from the public accounting profession (an ideal recruiting ground for future Ph.D. students). This, too, increases the risk of successfully completing a

[5] Whether it should take this long to earn an accounting Ph.D. is an entirely different question.
[6] The $200K opportunity cost is computed by multiplying the five year program length (mid-point of 4 to 6 years) by the difference between the $60K salary typically foregone (low end of the range) and the Ph.D. stipend of $20K (high end of the range). Again, $200K is a conservative estimate of the opportunity cost; for some it is much higher.

Ph.D. program. Notwithstanding this fact, it is imperative that Ph.D. students are well trained in research methods, including econometrics and statistics, because these tools are needed for accounting academics to contribute to the stock of knowledge in the discipline, an appropriate prerequisite for accounting programs to be accepted as legitimate academic offerings.

Third, once an individual earns a Ph.D. and secures a faculty position, he/she is expected (at many "good" schools) to publish 2-4 papers in "tier A" research journals (*The Accounting Review*, *Journal of Accounting Research*, *Journal of Accounting and Economics* and, if the new faculty member is lucky, *Contemporary Accounting Research* and/or *Review of Accounting Studies*). Given that these journals have acceptance rates around 10%, the odds of a faculty member succeeding at their first school are often small. If the faculty member does not succeed, he or she is essentially fired and in all likelihood will have to relocate to secure another faculty position, typically at a school "below" where they came from. This reality increases the risk associated with a career as an accounting academic and, holding all else constant, decreases its attractiveness.[7]

Fourth, if an individual: (a) absorbs the opportunity cost of a Ph.D. program, (b) successfully makes it through the program, and (c) publishes enough to earn tenure, that individual is often in his or her late 30s, and may be making (at many major state universities) $200K-$240K (including summer). However, if that same person had remained in public accounting by their late 30s they would probably be a partner (or close to it) and, in addition to the greater income over the period of a degree program, be making much more than the faculty salary, with the long-term prospects of making much more than most faculty members ever make.

[7] "Lower-tier" universities typically have less demanding research requirements, but they also typically pay less.

The high opportunity cost associated with pursuing an accounting Ph.D. (i.e., the combination of long programs and low stipends), coupled with the substantial risk of failure in both the Ph.D. program and in one's first faculty position significantly reduce the attractiveness of a career as an accounting academic.

Costs to the Institution in Offering an Accounting Ph.D. Program – The second reason for the shortage of accounting Ph.D. students is a lack of capacity, or an unwillingness to expand capacity, at many Ph.D. institutions. Other than the very large (e.g., Illinois, Texas) and/or very elite programs (e.g., Chicago, Stanford, Wharton, etc.), capacity to add more Ph.D. students is typically very limited. For example, at Tennessee we only have eight students in our program, because we only have five faculty members who currently are attempting to publish in high quality academic journals. If we received more applications from qualified applicants we would just raise our admission standards. Ph.D. programs are extremely expensive and time consuming -- class sizes are very, very small and sitting on Ph.D. committees, etc., consumes large amounts of faculty time. And, at some schools, faculty involvement in Ph.D. education is not highly valued because to some deans, Ph.D. programs simply cost them money while MBA programs make money and generate prestige for the dean. It is not too difficult to understand why some deans worship at the MBA altar every morning. In many business schools all programs other than the MBA are devalued; hence, it is hardly surprising if faculty are not willing to expand program size.

Therefore, any effort to increase student funding without addressing the issue of program capacity may yield disappointing results.

Benefits to the Student in Obtaining an Accounting Ph.D. – Although I believe there are substantial benefits to being an accounting academic, those benefits do not appear to be

persuasive to a sufficient number of qualified candidates. We are well paid, our work is interesting, we have tremendous autonomy, and we have the privilege of helping to shape lives and serve society. Few people are so fortunate. Unfortunately, these benefits are not attracting enough students.

Benefits to the Institution in Offering an Accounting Ph.D. Program – As stated above, most deans focus on college-wide programs, particularly those programs that have some financial potential, are larger and, best of all from the dean's perspective, receive recognition in the national media (e.g., *U.S. News & World Report*, *BusinessWeek*). Doctoral programs are largely discipline specific, small, and historically invisible to the national media. Moreover, from a dean's perspective, since these programs are faculty intensive, with small class sizes and close interaction between the student and the faculty member, they are quite expensive. From a dean's calculus, doctoral programs cost a lot of money and, in return, their institution gets little in the way of immediate return.

Like most public goods, doctoral education is prone to chronic underinvestment. It is interesting that the audit failures earlier this decade may reflect a similar underinvestment in the audit franchise by the firms. As a public good, audits, like Ph.D. programs, are expensive to the immediate purchaser and often show little value-added in the short-term. To sustain these programs at levels that will support the public's interests in effective and efficient capital markets requires a long-term view of the public interest and a willingness to invest in that interest.

Analysis of Net Costs vs. Benefits – From both the perspective of the student and the institution, the cost of an accounting Ph.D. often exceeds the benefit. Therefore, it is not surprising that enrollments in accounting Ph.D. programs have declined over time and are

continuing to decline. We will need not only additional investment in the programs, but also a change in the culture of the stakeholder institutions necessary to their long-term support.

Quality of New Accounting Faculty – New faculty members are outstanding on many dimensions. They are almost universally well trained in accounting research methods, including possessing expertise in finance and econometrics. Moreover, they are almost always very bright, ambitious, persistent, and articulate. Notwithstanding these outstanding individual qualities, there are two very important deficiencies among new accounting Ph.D.s on an aggregate basis. Both of these deficiencies are germane to this Advisory Committee.

First, there is a substantial, and growing, imbalance among new accounting Ph.D.s in their teaching and research focus. The main sub-areas within the accounting discipline are auditing, financial accounting, information systems, managerial accounting, and tax. The two most critical areas from the perspective of public company auditing are auditing and financial accounting, although information systems and tax play important roles as well. In a recent study of the supply of and demand for future accounting Ph.D.s, there are substantial shortfalls projected in the areas of auditing, tax and, to a lesser extent, systems. Only 22%, (27%), and [56%] of the anticipated demand for Ph.D.s in coming years in auditing, (tax), and [systems] will be met (Plumlee et al., 2006). The only sub-area where supply and demand are in approximate equilibrium is in financial accounting – anticipated supply is equal to 92% of projected demand.

The reasons for this imbalance across sub-areas are likely due to two factors. First, as mentioned above, at least two of the top three journals in accounting prefer to publish financial accounting research. To the extent that more schools require publications in tier A journals for tenure, Ph.D. students perceive that they must do financial accounting research to have any reasonable chance of earning tenure. Second, the lifeblood of research is data (or subjects for

scholars of a behavioral inclination). Research databases are readily available in financial accounting (e.g., Compustat, CRSP, WRDS, among numerous others). Conversely, doctoral students in the aforementioned Deloitte study indicated that lack of access to public accounting firm and client data represented a severe obstacle to the research they want to conduct, and that this difficulty might result in them focusing on a different accounting sub-area. These problems are not independent of each other and are particularly acute among auditing researchers. This issue must be addressed, or auditing may cease to exist as a discipline on many university campuses. I believe that another one of the panelists will have more to say on this issue.

Second, many of the new accounting Ph.D.s are not CPAs and have little, if any, experience in the profession. In the 1960's and 1970's more Ph.D. students were recruited from the profession and came with experience and a CPA certificate. The trend away from this model has become more evident over the years and has become more severe in recent years as the rewards of practice have risen and those of academe fallen in comparison.[8] As elaborated on below, today, accounting Ph.D. programs recruit most effectively in foreign domains where the students generally have no experience in our accounting profession and do not have CPA certificates. For an applied field like accounting, this is a troublesome development. Again, why? First, an increasing proportion of Ph.D. students are from China, Korea, Russia, etc., and these students are much less likely to be CPAs than are U.S. born students. Unlike for U.S. born students, the opportunity cost of earning a Ph.D. and the quantitative risk are less for many foreign students. Second, even U.S. born students may be more likely to enter an accounting Ph.D. program with a quantitative background (math, physics, economics, etc.) than an accounting background than was the case 20-30 years ago. Students with such backgrounds are

[8] Although only anecdotal, I entered my Ph.D. program in 1987, and the base student stipend was $14K. As indicated previously, the typical Ph.D. stipend today is between $10K and $20K.

unlikely to be CPAs. Although there are many excellent faculty members who are not CPAs, the lack of a critical mass of faculty members who are CPAs often reduces the link between theory and practice and deprives students of exposure to the institutional richness of the auditing profession that can often only be acquired from having worked in practice.

Concluding Comments on Education

I have highlighted a number of challenges facing accounting profession, both as it relates to the quality of a sufficient number of entrants into the public company auditing profession and as it relates to the quantity and quality of new Ph.D. graduates. An issue the Advisory Committee may want to consider is whether the structural placement of accounting programs within the university is optimal, and whether the social science research paradigm adopted in the late 1960's is optimal for accounting faculty. Research convincingly documents that publication rates for accounting faculty are generally among the lowest in the business school (Swanson, 2004). The interesting question is why? One likely reason is that unlike other business school disciplines where course content often is derived from research journals, in accounting our course content and research are not well-integrated. In part this is due to the ever increasing body of professional standards and the demand that these standards be covered in our classes. To provide limited empirical data on this issue, I analyze two frequently-used principles textbooks in accounting and two in finance. I compute the number of citations per page to the academic literature in the accounting texts as compared to the finance texts. As indicated in the table below, cites to the academic literature in finance texts are 75 times more prevalent than cites to the academic literature in accounting texts. This wide disparity illustrates an essential difference between accounting education and other business school disciplines – accounting faculty often obtain limited synergy between our research and teaching, unlike many of our

business school peers, making a career as an accounting academic more difficult and therefore less attractive.

Can We Leverage Our Research And Teaching Responsibilities?	**Pages**	**Citations**	**Cites/Page**
Introductory Finance Texts			
Fundamentals of Financial Management, Eighth Edition Eugene Brigham and Joel Houston Dryden Press 1998	898	43	0.048
Fundamental of Financial Management, Twelfth Edition James Van Horne and John M. Wachowicz, Jr. Prentice Hall, 2004	736	448	0.609
Total pages	1634	491	0.300
Introductory Accounting Texts			
Accounting Principles, 8th Edition Weygandt, Kieso, and Kimmel John Wiley & Sons, 2007	1172	5	0.004
Financial & Managerial Accounting, 8th Edition Warren, Reeve, and Fess Thomson-Southwestern, 2005	1105	3	0.003
Total pages	2277	8	0.004

Finance textbooks cite research studies 75 times as often as accounting textbooks cite research studies

Academic accountants need to participate in the intellectual life of their universities, provide a sound technical education for their four- and five-year entry level professionals, and produce more faculty to sustain the process. The academic community needs to reconsider the current research, teaching, and service model if each of these needs is to be met. At the same time, the profession needs to reconsider its relationship to the educational process. A short-term emphasis on recruiting needs will not serve the public interest any better than a faculty that focuses only on its individual promotion prospects. I hope that the efforts of the Advisory

Committee will lead to the kind of long-term study that is needed to identify and implement effective change and that it will not focus primarily on immediate solutions.

CPA Licensure

The Advisory Committee's outline (# 2.4.3) calls for a consideration of the adequacy of CPA licensing requirements (in the HC section of the outline). Although state boards of accountancy clearly have a role in licensing accountants whose practice largely affects intrastate commerce (arguably audit and review work performed for private companies, certain tax services, etc.), it is much more debatable whether it is appropriate for state boards of accountancy to regulate the licensing and education of individuals whose practice is public company auditing. The Advisory Committee should consider whether the *typical* state board of accountancy has the expertise, resources, and independence to effectively oversee public company auditors. To provide some limited empirical data on this issue, the below table provides descriptive statistics on the composition of five state boards of accountancy from mid-sized states.[9]

[9] I chose mid-size states for this analysis because neither very large nor very small states are likely to be representative.

State Boards of Accountancy Composition Analysis

	Kansas	North Carolina	Ohio	Tennessee	Washington
Percentage of CPAs	71%	71%	89%	82%	75%
Percentage of Public Members	29%	29%	11%	9%	25%
Of Those In Public Accounting:					
Percentage of Big 4	20%	20%	33%	11%	0%
Percentage of Next 4	0%	0%	0%	0%	0%
Percentage with smaller firms	80%	80%	67%	89%	100%
Percentage w/ firms registered w/ PCAOB	20%	20%	50%	44%	75%
2006 Board Revenues	$ 363,830	$ 1,177,000	(a) $ 1,291,634	$ 726,132	$ 1,177,000
Number of companies headquartered in state per Compustat Industrial Annual 2006 [(b)]	39	138	240	97	144

(a) Because Board revenue information was not available for the North Carolina State Board of Certified Public Accountant Examiners, we have used the revenues reported by the Washington State Board of Accountancy, the state with the most similar number of Compustat firms.

(b) Compustat Industrial Annual 2006 provides data for 8,306 firms in the 50 states plus the District of Columbia.

Expertise of State Boards of Accountancy -- Although the typical state board of accountancy is heavily populated with CPAs, the overwhelming majority of these CPAs practice with a smaller public accounting firm, and, in four out of the five states listed, 50% or less of these CPAs practice in a firm that is not even registered with the PCAOB (and an even larger percentage is likely to not have been inspected). I question whether bodies so composed have the expertise to regulate licensure and education requirements for those individuals planning to practice public company auditing.

Resources of State Boards of Accountancy -- The total budget for these five state boards of accountancy is $4,735,596. There are 658 public companies (per Compustat) with headquarters in these five states. Therefore, state resources allocated to oversight of the accounting profession is $7,197 per public company. The PCAOB's budget is $144.6 million. There are 8,306 public companies (per Compustat). The PCAOB allocates $17,409 per public company. This discrepancy in available resources is large and leads one to question whether state boards have the resources to adequately oversee public company auditors.

Independence of State Boards of Accountancy – As stated above, the typical member of a state board of accountancy is a CPA in public practice, albeit for a local firm. The U.S. Congress, when creating the PCAOB as part of SOX, chose to limit the number of CPAs on the PCAOB to 40% of the Board's composition (60% are arguably "public members").[10] Presumably this decision reflects the Congress' judgment that the accounting profession's attempt at self-regulation had failed. However, public members on these five state boards of accountancy range from approximately 10% to 30%. Therefore, when it comes to licensure and education requirements, we continue to act as if self-regulation is a viable model. Why? Unless a satisfactory answer to this question is provided, I encourage the Advisory Committee to reexamine the current approach to licensure and educational standards.

Concluding Comments

These comments are meant to serve as background for my testimony on December 3rd, and to highlight the major HC challenges facing the public company auditing profession. I will present one potential solution to these challenges in my testimony before the Advisory Committee.

[10] In addition, although Dan Goelzer and Charley Niemeier are CPAs, I would argue that both are essentially public members as well. Goelzer was the longest serving General Counsel in SEC history, and Niemeier served as Chief Accountant of the SEC's Enforcement Division and as co-chair of the SEC's Financial Fraud Task Force before joining the PCAOB.

REFERENCES

103rd American Assembly. 2003. *The Future of the Accounting Profession* (Leesburg, VA: The American Assembly, Columbia University).

AAA/APLG/FSA Doctoral Education Committee. 2007. *Report of the Joint AAA/APLG/FSA Doctoral Education Committee*.

Albrecht, S., and R. Sack. 2000. *Accounting Education: Charting the Course through a Perilous Future*. American Accounting Association, Accounting Education Series, Vol. 16.

Allen, A., and A. Woodland. 2006. The 150-Hour Requirement and the Number of CPA Exam Candidates, Pass Rates, and the Number Passing. *Issues in Accounting Education* (21): 173-193.

Anderson, J., and L. Thomas, Jr. 2007. Goldman Sachs Rakes in Profit in Credit Crisis. *The New York Times* (November 19).

Billiot, M-J., S. Glandon, and R. McFerrin. 2004. Factors Affecting the Supply of Accounting Graduates. *Issues in Accounting Education* (19): 443-467.

Boone, J., and T. Coe. 2002. The 150-Hour Requirement and Changes in the Supply of Accounting Undergraduates: Evidence from a Quasi-Experiment. *Issues in Accounting Education* (17): 253-268.

Cumming, J., and L. Rankin. 1999. 150 Hours: A Look Back. *Journal of Accountancy* (April).

Deloitte. 2007. *Deloitte Foundation Accounting Doctoral Student Survey*.

Haselback, J. 2007. *Jim Hasselback's 2007 Analysis of Accounting Faculty Birthdates*.

Kaplan, S., and J. Rauh. 2007. Wall Street and Main Street: What Contributes to the Rise in the Highest Incomes? NBER Working Paper No. 13270.

Ketz, E. 2004. The Accounting Cycle: The Future of Auditing Firms. Article at http://accounting.smartpros.com/x44334.xml.

Nelson, I., V. Vendrzyk, J. Quirin, and R. Allen. 2002. No, the Sky Is Not Falling: Evidence of Accounting Student Characteristics at FSA Schools, 1995-2000. *Issues in Accounting Education* (17): 269-287.

Plumlee, D., S. Kachelmeier, S. Madeo, J. Pratt, and G. Krull. 2006. Assessing the Shortage of Accounting Faculty. *Issues in Accounting Education* (21): 113-125.

Raghunandan, K., W. Read, and C. Brown. 2003. The 150-hour Rule: Does it Improve CPA Exam Performance. *Managerial Auditing Journal* (18): 31-38.

Wier, B., D. Stone, and J. Hunton. 2005. Does Graduate Business Education Contribute to Professional Accounting Success? *Accounting Horizons* (19): 85-100.